

Instructions for Use of Figure 431.0 (a) and (b)  
"Capacity of Curb Opening Inlets on Continuous Grade"

Figure 431.0 applies to curb or side opening inlets on continuous grades.

The capacity of the inlet depends upon the length of opening and the depth of flow at the upper end of the opening. This depth in turn depends upon the amount of depression of the flow line at the inlet and the cross slope, longitudinal slope, and the roughness of the gutter.

To use figure 431.0 (a) and (b) for curb opening inlets the following information must be know:

1. Length (L) of the inlet opening.
2. Depth (a) of local flow line depression, if any, at the inlet. (See Page I-4-A-1) of the Highway Drainage Manual
3. Design discharge ( $Q_a$ ) in the gutter or information as to drainage area, rainfall intensity, and runoff coefficients from which a design discharge can be estimated. Any carry-over from a previous inlet must be included.
4. Depth of flow in normal gutter for the particular longitudinal and cross slopes at the inlet in question. This may be determined from the following figure: 430.1.

Procedure

1. Enter Figure 431.0 (a) with depth of flow,  $y$  from Figure 430.1, local depression,  $a$ , and determine  $Q_a L_a$ , the interception per foot of inlet opening if the inlet were intercepting 100% of the flow.
2. Determine length of inlet  $L_a$  required to intercept 100% of the flow.  $L_a =$  total flow  $Q_a$  divided by the factor  $Q_a/L_a$ .
3. Compute ratio  $L/L_a$  where  $L =$  actual length of inlet in question.
4. Enter Figure 431.0 (b) with  $L/L_a$  and the ratio  $a/y$  and determine ratio  $Q/Q_a$ , the proportion of the total flow intercepted by the inlet in question.
5. Flow intercepted,  $Q$ , is this ratio  $Q/Q_a$  times the total flow  $Q_a$ .
6. Flow carried over to next inlet is  $Q_a - Q$ .